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(54) 【発明の名称】 油脂含有食品風味劣化防止剤

(57) 【要約】

【課題】 油脂含有食品の製造時の任意の段階において添加することにより油脂含有食品の劣化により生成する異味異臭を抑制して、長期間保存しても風味が変化しない油脂含有食品の製造を可能にする油脂含有食品の風味劣化防止剤を提供する。

【解決手段】 クロロゲン酸、カフェー酸、フェルラ酸よりなる群から選ばれた少なくとも 1 種を有効成分として配合することを特徴とする油脂含有食品風味劣化防止剤を提供する。

【特許請求の範囲】

【請求項1】 クロロゲン酸、カフェー酸、フェルラ酸から選ばれる少なくとも1種を配合することを特徴とする油脂含有食品の風味劣化防止剤。

【請求項2】 油脂含有食品が、油脂類を50%以上含有する食品である請求項1記載の油脂含有食品風味劣化防止剤。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は油脂含有食品の風味劣化防止剤に関し、更に詳しくは、クロロゲン酸、カフェー酸、フェルラ酸から選ばれる少なくとも1種を有効成分として含有することを特徴とする油脂含有食品の風味劣化防止剤に関する。

【0002】

【従来の技術】油脂類を多く含む食品、例えば、油脂類を50%以上含有するマーガリン、マヨネーズなどは時間の経過とともに風味の劣化が進むことはよく知られていて、特に開封後にその傾向が著しい。例えば、風味の劣化の原因は、その食品を構成している、例えば、糖類、蛋白質、脂肪、灰分、酸類が光、熱、酸素の影響を受けて酸化分解して揮発性化合物を生成し、または相互に反応して着色物質を生成したり、重合物質を形成するなど、製造時には予測出来なかった変化を生じる結果、品質の劣化、とりわけ風味の劣化をもたらす原因になっている。

【0003】油脂含有食品の品質保持方法については種々の提案がなされている。例えば、油脂性食品にL-アスコルビン酸またはエリソルビン酸、アミノ酸、抗酸化剤を添加して加熱する油脂性食品の安定法（特公昭57-786号公報）、エチルアルコールを添加して油脂の酸化による風味の劣化を防止する油脂含有食品素材の品質保持方法（特開昭56-5083号公報）、フェルラ酸エステルをアミノ化合物と併用して添加する油脂類の酸化防止法（特開昭56-167784号公報）、油脂含有食品を酢酸菌あるいはパン酵母と接触させることにより、油脂の酸化に起因する変色、酸化臭の発生等の品質劣化を防止する方法（特開平1-157367号公報、特開平1-277476号公報）等、油脂含有食品の品質保持方法に関して多数の提案がなされている。

【0004】一方、飲食品の退色或いは褐変等の変色防止にクロロゲン酸、カフェー酸等の抗酸化剤を利用したアントシアニン系色素の退色防止剤（特公平1-22872号公報）、アントシアニン系色素含有飲食物（特開平1-132344号公報）、パプリカ色素の退色防止方法（特公昭59-50265号公報）、糖類の褐変防止方法（特開昭57-115147号公報）、褐変のないキャンディーの製造法（特公昭58-32855号公報）等が提案されている。また、本願出願人も、クロロゲン酸、カフェー酸、フェルラ酸よりなる群から選ば

た少なくとも1種及びビタミンC、ルチン、ケルセチンよりなる群から選ばれた少なくとも1種を飲食品に含有せしめることを特徴とする飲食品のフレーバー劣化防止方法（特開平4-27374号公報）、及び、クロロゲン酸、カフェー酸、フェルラ酸よりなる群から選ばれた少なくとも1種よりなる抗酸化成分と、プロアントシアニジン少量体よりなる抗酸化成分からなる飲食品のフレーバー劣化防止剤（特開平6-38723号公報）を提案した。

【0005】

【発明が解決しようとする課題】しかしながら、上記提案の多くは油脂類が酸化されることによって劣化が進むのを防止する方法に関する提案であって、油脂類の酸化分解のみならず、食品を構成している多成分からなる組成物相互の反応を抑制して風味の劣化を防止しようとする試みはなされていない。

【0006】また、クロロゲン酸、カフェー酸、フェルラ酸に関する特許出願は色素、糖類あるいは飲料、冷菓、デザート食品等に関するもので、油脂を高濃度に含有する油脂含有食品に関するものではない。

【0007】

【課題を解決するための手段】本発明者らは、上記のごとき従来提案の欠点を解決すべく鋭意研究を重ねて来た。その結果、クロロゲン酸、カフェー酸、フェルラ酸から選ばれた少なくとも1種を有効成分として含有する油脂含有食品風味劣化防止剤を油脂含有食品に添加することにより、油脂含有食品の加工乃至保存間における加熱及び酸化等による変化を防止し、異味異臭の発生による不都合な風味の劣化を長期間実質的に抑制することができるを見いだし本発明を完成した。

【0008】従って本発明の目的は、油脂含有食品を長期間保存しても風味の変化を効果的に抑制することを可能にする、油脂含有食品の風味劣化防止剤を提供するにある。

【0009】

【発明の実施の形態】本発明で利用するクロロゲン酸、カフェー酸およびフェルラ酸は市場で入手可能であるが、これらクロロゲン酸、カフェー酸およびフェルラ酸は必ずしも純品である必要はなく、例えば、さつまいも、コーヒー生豆、南天の葉、リンゴ未熟果などのクロロゲン酸を多く含む植物体から抽出したものでよく、例えば、下記の如くして得られるコーヒー生豆の抽出物をこれらに置き換えて利用することができる。

【0010】コーヒー生豆から抽出物を得るには、例えば、粉碎したコーヒー生豆に、約3〜約20倍重量のエタノールもしくは50%乃至70%の含水エタノールもしくは水を添加して、例えば、約60℃〜約100℃で、例えば約1時間乃至約10時間加熱する。冷却後、不溶性固形分を分離、除去して得られる抽出液に塩酸濃度が例えば約3〜10%になるように塩酸を添加して、

例えば約50℃～約100℃で、約30分～約5時間加熱攪拌し、加水分解処理をする。次いで濃縮後、該濃縮液を例えば、水酸化ナトリウム、水酸化カリウムなどを用いて中和し、さらに例えば多孔性重合樹脂で処理して該樹脂に吸着させ、次いで該樹脂を例えばエタノールで溶出処理して、クロロゲン酸、カフェー酸等を含有する抽出物を得ることができる。或は上記抽出液を加水分解処理することなくそのまま溶媒を回収して濃縮し、次いで塩化メチレンなどで洗浄した後、上記と同様に多孔性重合樹脂で吸着処理することにより本発明で利用するコーヒー抽出物を得ることができる。このようにして得られたコーヒー生豆抽出物は、クロロゲン酸換算で約25%～約70%のクロロゲン酸及びカフェー酸の混合物又はクロロゲン酸及びクロロゲン酸同族体の混合物を含有する。

【0011】本発明で利用するクロロゲン酸、カフェー酸およびフェルラ酸又はこれらを含有するコーヒー生豆抽出物はそのままでよいし、又はこれら有効成分を適当な希釈剤もしくは担体との組成物の形態であってもよい。このような希釈剤もしくは担体の例としては、アラビアガム、デキストリン、グルコース、サイクロデキストリン、シュクロース等の如き固体希釈剤もしくは担体、水、エタノール、プロピレングリコール、グリセリン、界面活性剤等の如き液体希釈剤もしくは担体を挙げることができる。かかる希釈剤もしくは担体を用いて液状、乳液状、ペースト状、粉末状、顆粒状その他適宜の剤形とすることができる。

【0012】本発明品を使用することができる油脂含有食品の具体例としては、例えば、マーガリン、ファットスプレッド、ピーナッツバター、マヨネーズ、バタークリーム、バター、コーヒーホワイトナー、ドレッシング、クリーム、チーズ類等を挙げることができる。より好ましくは、油脂類を50%以上含有する、ファットスプレッド、マーガリン、マヨネーズなどを例示することができる。

【0013】これら油脂含有食品に対する本発明品の油脂含有食品風味劣化防止剤の添加量としては、比較的選択の幅が広いが、一般的にはクロロゲン酸換算で、油脂含有食品に対して約0.02重量%～約0.001重量%程度の範囲が屢々採用される。

【0014】

【実施例】以下、参考例、実施例及び比較例によって更に詳しく説明する。

【0015】参考例1

コーヒー生豆300gをコーヒーマイルにて粉碎し、この粉碎物に1500gの70%エタノール水溶液を加えて、90℃、2時間攪拌加熱した。冷却後不溶性固形分を除去して、抽出液1100gを得た。この抽出液を減圧下で濃縮してエタノールを除去した後、これに35%塩酸180gを加えて、抽出液中の塩酸濃度が約5%になるように調整し、70℃、1時間攪拌加熱した。冷却後減圧下で300gになるまで濃縮し、得られた濃縮液に20%水酸化ナトリウムを添加して中和し、次いで塩化メチレン600gを加えて充分混合攪拌した。水層を分離した後、ダイイオンHP-20樹脂(三菱化学社製)500mlを充填したカラム中に徐々に流した。次いで樹脂を十分に水洗した後95%エタノール750gを流して樹脂に吸着した物質を溶出させた。得られた溶液を減圧濃縮後乾燥して、クロロゲン酸及びカフェー酸の混合物を含有するコーヒー生豆抽出物27gを得た。

【0016】実施例1～4

市販のマーガリンを100g計量して約40℃～約50℃に加熱して溶解した後、クロロゲン酸の1%水溶液1gを添加してよく攪拌し、30℃にて保存した(実施例1)。全く同様にして、カフェー酸の1%水溶液を1g(実施例2)、フェルラ酸の1%水溶液を1g(実施例3)、参考例1で得られたコーヒー生豆抽出物の1%水溶液を1.5g(実施例4)をそれぞれマーガリン100gに添加して、無添加品とともに30℃で保存した。

【0017】比較例1

実施例1～4に用いた市販のマーガリン100gにエチルアルコールを5g添加(特開昭56-5083号公報)して、30℃に保存した。

【0018】5人のよく訓練されたパネラーによって、上記の実施例1～4及び比較例1の経時変化について1週間、2週間、1ヶ月及び3ヶ月保存後の香気及び呈味を判定し、その結果を表1に示した。

【0019】

【表1】

マーガリンの経時変化

	1週間後	2週間後	1ヶ月後	3ヶ月後
無添加品	+2	+3	+5	+8
クロロゲン酸添加品	0	0	+1	+2
カフェー酸添加品	0	0	+1	+2
フェルラ酸添加品	0	+1	+2	+3
コーヒー生豆抽出物添加品	0	+1	+1	+2
エチルアルコール添加品	+1	+2	+4	+6

(＋が多いほど劣化臭強く、変化が大きい。)

【0020】実施例5～8

市販のマヨネーズ100gを透明なガラスビンに計量し、クロロゲン酸の1%水溶液1gを添加してよく攪拌した後、4℃に保存した(実施例5)。全く同様にし、カフェー酸の1%水溶液を1g(実施例6)、フェルラ酸の1%水溶液を1g(実施例7)、参考例1で得られたコーヒー生豆抽出物の1%水溶液を1.5g(実施例8)をそれぞれマヨネーズ100gに添加して透明なガラスビンに入れ、無添加品とともに4℃で保存した。

【0021】比較例2

*実施例5～8に用いた市販のマヨネーズ100gを透明なガラスビンに入れ、エチルアルコールを5g添加(特開昭56-5083号公報)して、4℃に保存した。

【0022】上記の実施例5～8及び比較例2で調製したサンプルを4℃保存下に蛍光灯照射して、経時変化を観察し、1週間、2週間、1ヶ月及び3ヶ月保存後の香気及び呈味を5人のよく訓練されたパネラーによって判定し、その結果を表2に示した。

【0023】

【表2】

* マヨネーズの経時変化

	1週間後	2週間後	1ヶ月後	3ヶ月後
無添加品	+3	+5	+7	+9
クロロゲン酸添加品	0	+1	+2	+2
カフェー酸添加品	0	+1	+2	+2
フェルラ酸添加品	0	+1	+3	+4
コーヒー生豆抽出物添加品	0	+1	+2	+2
エチルアルコール添加品	+2	+3	+5	+7

(＋が多いほど劣化臭強く、変化が大きい。)

【0024】上記のように、実施例1～4のマーガリン及び実施例5～8のマヨネーズの場合の温度または紫外線照射による経時変化の観察において、香気及び呈味の比較を行った5人のパネラーとも本発明品の油脂含有食品風味劣化防止剤を添加したマーガリンまたはマヨネーズは劣化臭の生成は抑制されているが、無添加品及び比較品は劣化の程度が大きく、本発明品が効果があると判

※定した。

【0025】

【発明の効果】本発明によれば、クロロゲン酸、カフェー酸、フェルラ酸よりなる群から選ばれた少なくとも1種を有効成分として配合する油脂含有食品風味劣化防止剤を添加することにより、長期間保存しても香気香味の変化のない油脂含有食品を提供することができる。

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File: JPAB

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TITLE: FLAVOR DETERIORATION INHIBITOR FOR OIL AND FAT-CONTAINING FOOD

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INVENTOR-INFORMATION:

NAME

COUNTRY

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ASSIGNEE-INFORMATION:

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T HASEGAWA CO LTD

APPL-NO: JP08356510

APPL-DATE: December 26, 1996

INT-CL (IPC): C11 B 5/00; A23 F 5/24; A23 L 1/221; A23 D 7/06; C09 K 15/08

ABSTRACT:

PROBLEM TO BE SOLVED: To obtain the subject deterioration inhibitor capable of suppressing changing of flavor of an oil and fat-containing food even in storing for a long period of time by containing at least one kind selected from chlorogenic acid, caffeic acid and ferulic acid.

SOLUTION: This flavor deterioration inhibitor for an oil and fat-containing food is obtained by mixing (A) at least one kind selected from chlorogenic acid, caffeic acid and ferulic acid and (B) a diluent or a carrier, as necessary. Each of the component A is not necessarily pure substance and e.g. an extract containing the component A extracted from a plant body abundantly containing chlorogenic acid, such as sweet potato, coffee beans, leaves of Nandina domestica and an unripe fruit of apple, may be used. Preferably, an oil and fat-containing food (e.g. margarine) containing $\geq 50\text{wt.}\%$ of oil and fats is added with the deterioration inhibitor in an amount of about $0.001\text{--}0.02\text{wt.}\%$ reduced to chlorogenic acid based on the oil and fat-containing food.

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(71)Applicant : T HASEGAWA CO LTD

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(72)Inventor : IZAWA MIYOSHI
INAMI OSAMU

(54) FLAVOR DETERIORATION INHIBITOR FOR OIL AND FAT-CONTAINING FOOD

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain the subject deterioration inhibitor capable of suppressing changing of flavor of an oil and fat-containing food even in storing for a long period of time by containing at least one kind selected from chlorogenic acid, caffeic acid and ferulic acid.

SOLUTION: This flavor deterioration inhibitor for an oil and fat-containing food is obtained by mixing (A) at least one kind selected from chlorogenic acid, caffeic acid and ferulic acid and (B) a diluent or a carrier, as necessary. Each of the component A is not necessarily pure substance and e.g. an extract containing the component A extracted from a plant body abundantly containing chlorogenic acid, such as sweet potato, coffee beans, leaves of Nandina domestica and an unripe fruit of apple, may be used. Preferably, an oil and fat-containing food (e.g. margarine) containing $\geq 50\text{wt.}\%$ of oil and fats is added with the deterioration inhibitor in an amount of about $0.001\text{-}0.02\text{wt.}\%$ reduced to chlorogenic acid based on the oil and fat-containing food.

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JAPANESE

[JP,10-183164,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE
INVENTION TECHNICAL PROBLEM MEANS EXAMPLE

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CLAIMS

[Claim(s)]

[Claim 1] The flavor degradation inhibitor of the fats-and-oils content food characterized by blending at least one sort chosen from chlorogenic acid, caffeic acid, and ferulic acid.

[Claim 2] The fats-and-oils content food flavor degradation inhibitor according to claim 1 whose fats-and-oils content food is the food which contains fats and oils 50% or more.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the flavor degradation inhibitor of the fats-and-oils content food characterized by containing in more detail at least one sort chosen from chlorogenic acid, caffeic acid, and ferulic acid as an active principle about the flavor degradation inhibitor of fats-and-oils content food.

[0002]

[Description of the Prior Art] It is known well that degradation of flavor will progress with the passage of time, and the inclination of the food containing many fats and oils, for example, the margarine which contains fats and oils 50% or more, and mayonnaise etc. is remarkable especially after opening. For example, the saccharide from which the cause of degradation of flavor constitutes the food, Protein, a fat, ash content, and acids carry out oxidative degradation in response to the effect of light, heat, and oxygen, and a volatile compound is generated. or the result which produces change which was not able to be predicted at the time of manufacture, such as generating the coloring matter or forming the polymerization matter in response to mutual, -- degradation of quality, and the cause of especially bringing about degradation of flavor -- intermediary ****.

[0003] Various proposals are made about the quality maintenance approach of fats-and-oils content food. For greasy food, for example, L-ascorbic acid or erythorbic acid, amino acid, The method of stabilizing greasy food for adding and heating an anti-oxidant (JP,57-786,B), The quality maintenance approach of the fats-and-oils content food raw material which adds ethyl alcohol and prevents degradation of the flavor by oxidation of fats and oils (JP,56-5083,A), By contacting the antioxidizing method (JP,56-167784,A) of the fats and oils which use ferulic acid ester together with the amino compound, and are added, and fats-and-oils content food to acetic bacteria or baker's yeast Much proposals are made about the quality maintenance approaches of fats-and-oils content food, such as an approach (JP,1-157367,A, JP,1-277476,A) of preventing quality degradation of discoloration, generating of oxidized odor, etc. resulting from oxidation of fats and oils.

[0004] On the other hand, the fading inhibitor (JP,1-22872,B) of the anthocyanin system coloring matter which used anti-oxidants, such as chlorogenic acid and caffeic acid, for discoloration prevention of that an eating-and-drinking article fades or browning, anthocyanin system coloring matter content ingesta (JP,1-132344,A), the fading prevention approach (JP,59-50265,B) of a paprika pigment, the browning prevention approach (JP,57-115147,A) of a saccharide, the manufacturing method (JP,58-32855,B) of a candy without browning, etc. are proposed. Moreover, at least one sort and vitamin C as which the applicant for this patent was also chosen from the group which consists of chlorogenic acid, caffeic acid, and ferulic acid, Rutin, the flavor degradation prevention approach of the eating-and-drinking article characterized by making an eating-and-drinking article contain at least one sort chosen from the group which consists of a quercetin (JP,4-27374,A), And the flavor degradation inhibitor (JP,6-38723,A) of the eating-and-drinking article it is unrefined from the antioxidation component which consists of at least one sort chosen from the group which consists of chlorogenic acid, caffeic acid, and ferulic acid,

and the antioxidation component which consists of a pro anthocyanidin little object was proposed.

[0005]

[Problem(s) to be Solved by the Invention] However, the attempt which is going to control the reaction between constituents which many of above-mentioned proposals are proposals about the approach of preventing degradation progressing when fats and oils oxidize, and consists of multicomponent which constitutes not only the oxidative degradation of fats and oils but food, and is going to prevent degradation of flavor is not made.

[0006] Moreover, the patent application about chlorogenic acid, caffeic acid, and ferulic acid is not related with the fats-and-oils content food which contains fats and oils in high concentration about coloring matter, a saccharide or a drink, frozen desert, dessert food, etc.

[0007]

[Means for Solving the Problem] this invention persons came research in piles wholeheartedly that the fault of the conventional proposal like the above should be solved. Consequently, by adding the fats-and-oils content food flavor degradation inhibitor which contains at least one sort chosen from chlorogenic acid, caffeic acid, and ferulic acid as an active principle for fats-and-oils content food, change by heating, oxidation, etc. between processing of fats-and-oils content food thru/or preservation was prevented, it found out that degradation of the inconvenient flavor by generating of a different taste nasty smell could be controlled substantially for a long period of time, and this invention was completed.

[0008] Therefore, even if the object of this invention saves fats-and-oils content food for a long period of time, it is to offer the flavor degradation inhibitor of the fats-and-oils content food which makes it possible to control change of flavor effectively.

[0009]

[Embodiment of the Invention] Although the chlorogenic acid, caffeic acid, and ferulic acid which are used by this invention are available in a commercial scene, these chlorogenic acid, caffeic acid, and ferulic acid can replace and use for these the extract of the coffee student beans which it is not necessary to be necessarily a pure article for example, and what was extracted from the plant body containing many chlorogenic acid, such as a sweet potato, coffee student beans, a leaf of Nandina domestica, and an apple sheep mature fruit, may be used, for example, are obtained by carrying out as following.

[0010] the coffee student beans ground in order to have obtained the extract from coffee student beans -- ethanol or 50% thru/or 70% of water ethanol or water of about 3 - about 20 time weight -- adding -- for example, about 60 degrees C - about 100 degrees C -- it is -- for example, about 1 hour -- or it heats for about 10 hours. After cooling, a hydrochloric acid is added so that hydrochloric-acid concentration may become about 3 - 10% to the extract which separates insoluble solid content, removes and is obtained, for example, heating churning is carried out at about 50 degrees C - about 100 degrees C for about 30 minute - about 5 hours, and hydrolysis processing is carried out. Subsequently, it neutralizes using a sodium hydroxide, a potassium hydroxide, etc., and this concentration liquid can be processed by porous polymerization resin further, for example, and can be made to be able to stick to this resin after concentration, subsequently elution processing of this resin can be carried out by ethanol, and the extract containing chlorogenic acid, caffeic acid, etc. can be obtained. Or after it collects and condenses a solvent as it is and a methylene chloride etc. subsequently washes, without carrying out hydrolysis processing of the above-mentioned extract, the coffee extract used by this invention can be obtained by carrying out adsorption treatment by porous polymerization resin like the above. Thus, the obtained coffee student beans extract contains the mixture of the mixture of about 25% - about 70% of chlorogenic acid, and caffeic acid or chlorogenic acid, and a chlorogenic acid homolog by chlorogenic acid conversion.

[0011] The coffee student beans extract containing the chlorogenic acid, the caffeic acid and the ferulic acid, or these which are used by this invention may remain as it is, or may be the gestalt of a constituent with a suitable diluent or support about these active principles. As an example of such a diluent or support, a **** liquid diluent or support, such as **** solid-state diluents, such as gum arabic, a dextrin, a glucose, a cyclodextrin, and shoe cloth, or support, water, ethanol, propylene glycol, a

glycerol, and a surfactant, can be mentioned. It can consider as the shape of a liquid, a milk liquid, and a paste, powder, and granularity, in addition proper dosage forms using this diluent or support.

[0012] As an example of the fats-and-oils content food which can use this invention article, margarine, a fat-spread, peanut butter, mayonnaise, butter cream, butter, a coffee whitener, a dressing, a cream, and cheese heads can be mentioned, for example. The fat-spread and margarine which contain fats and oils 50% or more, mayonnaise, etc. can be illustrated more preferably.

[0013]

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the flavor degradation inhibitor of the fats-and-oils content food characterized by containing in more detail at least one sort chosen from chlorogenic acid, caffeic acid, and ferulic acid as an active principle about the flavor degradation inhibitor of fats-and-oils content food.

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PRIOR ART

[Description of the Prior Art] It is known well that degradation of flavor will progress with the passage of time, and the inclination of the food containing many fats and oils, for example, the margarine which contains fats and oils 50% or more, and mayonnaise etc. is remarkable especially after opening. For example, the saccharide from which the cause of degradation of flavor constitutes the food, Protein, a fat, ash content, and acids carry out oxidative degradation in response to the effect of light, heat, and oxygen, and a volatile compound is generated. or the result which produces change which was not able to be predicted at the time of manufacture, such as generating the coloring matter or forming the polymerization matter in response to mutual, -- degradation of quality, and the cause of especially bringing about degradation of flavor -- intermediary ****.

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[0004] On the other hand, the fading inhibitor (JP,1-22872,B) of the anthocyanin system coloring matter which used anti-oxidants, such as chlorogenic acid and caffeic acid, for discoloration prevention of that an eating-and-drinking article fades or browning, anthocyanin system coloring matter content ingesta (JP,1-132344,A), the fading prevention approach (JP,59-50265,B) of a paprika pigment, the browning prevention approach (JP,57-115147,A) of a saccharide, the manufacturing method (JP,58-32855,B) of a candy without browning, etc. are proposed. Moreover, at least one sort and vitamin C as which the applicant for this patent was also chosen from the group which consists of chlorogenic acid, caffeic acid, and ferulic acid, Rutin, the flavor degradation prevention approach of the eating-and-drinking article characterized by making an eating-and-drinking article contain at least one sort chosen from the group which consists of a quercetin (JP,4-27374,A), And the flavor degradation inhibitor (JP,6-38723,A) of the eating-and-drinking article it is unrefined from the antioxidation component which consists of at least one sort chosen from the group which consists of chlorogenic acid, caffeic acid, and ferulic acid, and the antioxidation component which consists of a pro anthocyanidin little object was proposed.

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EFFECT OF THE INVENTION

[Effect of the Invention] According to this invention, by adding the fats-and-oils content food flavor degradation inhibitor which blends at least one sort chosen from the group which consists of chlorogenic acid, caffeic acid, and ferulic acid as an active principle, even if saved for a long period of time, fats-and-oils content food without change of an aroma flavor can be offered.

[Translation done.]

JAPANESE

[JP,10-183164,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE
INVENTION TECHNICAL PROBLEM MEANS EXAMPLE

[Translation done.]

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MEANS

[Means for Solving the Problem] this invention persons came research in piles wholeheartedly that the fault of the conventional proposal like the above should be solved. Consequently, by adding the fats-and-oils content food flavor degradation inhibitor which contains at least one sort chosen from chlorogenic acid, caffeic acid, and ferulic acid as an active principle for fats-and-oils content food, change by heating, oxidation, etc. between processing of fats-and-oils content food thru/or preservation was prevented, it found out that degradation of the inconvenient flavor by generating of a different taste nasty smell could be controlled substantially for a long period of time, and this invention was completed.

[0008] Therefore, even if the object of this invention saves fats-and-oils content food for a long period of time, it is to offer the flavor degradation inhibitor of the fats-and-oils content food which makes it possible to control change of flavor effectively.

[0009]

[Embodiment of the Invention] Although the chlorogenic acid, caffeic acid, and ferulic acid which are used by this invention are available in a commercial scene, these chlorogenic acid, caffeic acid, and ferulic acid can replace and use for these the extract of the coffee student beans which it is not necessary to be necessarily a pure article for example, and what was extracted from the plant body containing many chlorogenic acid, such as a sweet potato, coffee student beans, a leaf of Nandina domestica, and an apple sheep mature fruit, may be used, for example, are obtained by carrying out as following.

[0010] the coffee student beans ground in order to have obtained the extract from coffee student beans -- ethanol or 50% thru/or 70% of water ethanol or water of about 3 - about 20 time weight -- adding -- for example, about 60 degrees C - about 100 degrees C -- it is -- for example, about 1 hour -- or it heats for about 10 hours. After cooling, a hydrochloric acid is added so that hydrochloric-acid concentration may become about 3 - 10% to the extract which separates insoluble solid content, removes and is obtained, for example, heating churning is carried out at about 50 degrees C - about 100 degrees C for about 30 minute - about 5 hours, and hydrolysis processing is carried out. Subsequently, it neutralizes using a sodium hydroxide, a potassium hydroxide, etc., and this concentration liquid can be processed by porous polymerization resin further, for example, and can be made to be able to stick to this resin after concentration, subsequently elution processing of this resin can be carried out by ethanol, and the extract containing chlorogenic acid, caffeic acid, etc. can be obtained. Or after it collects and condenses a solvent as it is and a methylene chloride etc. subsequently washes, without carrying out hydrolysis processing of the above-mentioned extract, the coffee extract used by this invention can be obtained by carrying out adsorption treatment by porous polymerization resin like the above. Thus, the obtained coffee student beans extract contains the mixture of the mixture of about 25% - about 70% of chlorogenic acid, and caffeic acid or chlorogenic acid, and a chlorogenic acid homolog by chlorogenic acid conversion.

[0011] The coffee student beans extract containing the chlorogenic acid, the caffeic acid and the ferulic acid, or these which are used by this invention may remain as it is, or may be the gestalt of a constituent with a suitable diluent or support about these active principles. As an example of such a diluent or

support, a **** liquid diluent or support, such as **** solid-state diluents, such as gum arabic, a dextrin, a glucose, a cyclodextrin, and shoe cloth, or support, water, ethanol, propylene glycol, a glycerol, and a surfactant, can be mentioned. It can consider as the shape of a liquid, a milk liquid, and a paste, powder, and granularity, in addition proper dosage forms using this diluent or support.

[0012] As an example of the fats-and-oils content food which can use this invention article, margarine, a fat-spread, peanut butter, mayonnaise, butter cream, butter, a coffee whitener, a dressing, a cream, and cheese heads can be mentioned, for example. The fat-spread and margarine which contain fats and oils 50% or more, mayonnaise, etc. can be illustrated more preferably.

[0013] Although the width of face of selection is comparatively wide as an addition of the fats-and-oils content food flavor degradation inhibitor of this invention article to these fats-and-oils content food, generally it is chlorogenic acid conversion and about 0.02 % of the weight - about 0.001% of the weight of the range is often adopted to fats-and-oils content food.

[Translation done.]

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EXAMPLE

[Example] Hereafter, the example of reference, an example, and the example of a comparison explain in more detail.

[0015] The coffee mill ground 300g of example of reference 1 coffee student beans, the ethanol water solution was added to this grinding object 70 1500g%, and 90 degrees C carried out churning heating for 2 hours. The insoluble solid content after cooling was removed and 1100g of extracts was obtained. After condensing under reduced pressure of this extract and removing ethanol, 180g of hydrochloric acids was added to this 35%, and it adjusted so that the hydrochloric-acid concentration in an extract might become about 5%, and 70 degrees C carried out churning heating for 1 hour. It condensed until it was set to 300g under after [cooling] reduced pressure, and the sodium hydroxide was added 20% in the obtained concentration liquid, it neutralized in it, subsequently 600g of methylene chlorides was added, and mixed churning was carried out enough. After separating a water layer, it passed gradually in the column filled up with 500ml (Mitsubishi Chemical make) of diamond ion HP-20 resin. Subsequently, after fully rinsing resin, the matter which passed ethanol 750g 95% and stuck to resin was made eluted. The obtained solution was dried after vacuum concentration and 27g of coffee student beans extracts containing the mixture of chlorogenic acid and caffeic acid was obtained.

[0016] 100g of margarine of one to example 4 marketing was measured, and after warming and dissolving in about 40 degrees C - about 50 degrees C, 1g of 1% water solutions of chlorogenic acid could be added, and it stirred, and saved at 30 degrees C (example 1). Similarly, it added to margarine 100g, respectively, and 1% water solution of the coffee student beans extract obtained [water solution / of caffeic acid / 1%] in 1g (example 3) and the example 1 of reference in 1g (example 2) and 1% water solution of ferulic acid was completely saved for 1.5g (example 4) at 30 degrees C with additive-free elegance.

[0017] 5g addition (JP,56-5083,A) of the ethyl alcohol was carried out to margarine 100g of marketing used for example of comparison 1 examples 1-4, and it saved at 30 degrees C.

[0018] By five persons' often trained panelist, the aroma and taste after one week, two weeks, one month, and three-month preservation were judged about aging of the above-mentioned examples 1-4 and the example 1 of a comparison, and the result was shown in a table 1.

[0019]

[A table 1]

マーガリンの経時変化

	1週間後	2週間後	1ヶ月後	3ヶ月後
無添加品	+2	+3	+5	+8
クロロゲン酸添加品	0	0	+1	+2
カフェー酸添加品	0	0	+1	+2
フェルラ酸添加品	0	+1	+2	+3
コーヒー生豆抽出物添加品	0	+1	+1	+2
エチルアルコール添加品	+1	+2	+4	+6

(＋が多いほど劣化臭強く、変化が大きい。)

[0020] Mayonnaise 100g of five to example 8 marketing was measured to the transparent glass bottle, and after adding 1g of 1% water solutions of chlorogenic acid and stirring, it saved at 4 degrees C (example 5). Similarly, it added to mayonnaise 100g, respectively, 1.5g (example 8) was put into the transparent glass bottle, and 1% water solution of the coffee student beans extract obtained [water solution / of caffeic acid / 1%] in 1g (example 7) and the example 1 of reference in 1g (example 6) and 1% water solution of ferulic acid was completely saved at 4 degrees C with additive-free elegance.

[0021] Mayonnaise 100g. of marketing used for example of comparison 2 examples 5-8 was put into the transparent glass bottle, 5g addition (JP,56-5083,A) of the ethyl alcohol was carried out, and it was saved at 4 degrees C.

[0022] The fluorescent lamp exposure of the sample prepared in an above-mentioned example 5-8 and the above-mentioned example 2 of a comparison was carried out under 4-degree-C preservation, aging was observed, the aroma and taste after one week, two weeks, one month, and three-month preservation were judged by five persons' often trained panelist, and the result was shown in a table 2.

[0023]

[A table 2]

マヨネーズの経時変化

	1週間後	2週間後	1ヶ月後	3ヶ月後
無添加品	+3	+5	+7	+9
クロロゲン酸添加品	0	+1	+2	+2
カフェー酸添加品	0	+1	+2	+2
フェルラ酸添加品	0	+1	+3	+4
コーヒー生豆抽出物添加品	0	+1	+2	+2
エチルアルコール添加品	+2	+3	+5	+7

(＋が多いほど劣化臭強く、変化が大きい。)

[0024] As mentioned above, in observation of aging by the temperature or UV irradiation of a case of the margarine of examples 1-4, and the mayonnaise of examples 5-8, although generation of a degradation smell was controlled for the margarine or the mayonnaise which added the fats-and-oils content food flavor degradation inhibitor of this invention article also with five persons' panelist who performed the comparison of aroma and taste, it judged with additive-free elegance and a comparison article having large extent of degradation, and this invention article being effective.

[Translation done.]